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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 09/974,571  | 10/09/2001  | Peter G. Borden      | M-11920 US          | 1003             |
| 34036   | 7590        | 12/02/2004           | EXAMINER            |                  |
| SILICON VALLEY PATENT GROUP LLP<br>2350 MISSION COLLEGE BOULEVARD<br>SUITE 360<br>SANTA CLARA, CA 95054 |             |                      | STOCK JR, GORDON J  |                  |
|   |             |                      | ART UNIT            | PAPER NUMBER     |
|   |             |                      | 2877                |                  |

DATE MAILED: 12/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

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|                              |                                      |                                      |  |
|------------------------------|--------------------------------------|--------------------------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>09/974,571 | <b>Applicant(s)</b><br>BORDEN ET AL. |  |
|                              | <b>Examiner</b><br>Gordon J Stock    | <b>Art Unit</b><br>2877              |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 September 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 9, 10, 18, 21, 30-34 and 39-43 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9, 18 and 39-43 is/are allowed.
- 6) ☒ Claim(s) 21 and 30-34 is/are rejected.
- 7) ☒ Claim(s) 10 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 September 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)                                    | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Objections*

1. **Claim 10** is objected to for the following: “the first location” and “the second location” lack antecedent basis. Correction is required.

### *Claim Rejections - 35 USC § 112*

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. **Claim 21** is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

**Claim 21** is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: the relationship between the measurements with thickness determination with the measurements also comprising a measurement of concentration and junction depth.

### *Claim Rejections - 35 USC § 102*

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
5. **Claims 30, 31, and 34** are rejected under 35 U.S.C. 102(e) as being anticipated by **Nikoonahad et al. (6,694,284)**.

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As for **claims 30 and 34**, Nikoonahad in a method and system for determining at least four properties of a specimen discloses: a first measurement device, a calibrating ellipsometer (col. 107, lines 65-67); a second measurement device, a spectroscopic ellipsometer (col. 108, lines 3-5); a processor coupled to each with software configured to calibrate the second measurement device for use at a second location, different layers of the specimen, based on a plurality of measurements by the first measurement device at a first location, a reference layer, that is different from subsequent layers measured by spectroscopic ellipsometer (col. 108, lines 1-20); receiving a measurement from the ellipsometers and generating models of property based on measurements done by ellipsometers (col. 79, lines 25-65).

As for **claim 31**, Nikoonahad discloses everything as above (see claim 30). In addition, he teaches that the calibrating ellipsometer may have a lower resolution than the spectroscopic ellipsometer, for the second measurement system may have a higher resolution than the first system for measuring the property of the sample (col. 67, lines 5-11).

***Claim Rejections - 35 USC § 103***

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

7. **Claims 32-33** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Nikoonahad et al. (6,694,284)** further in view of **Rosencwaig et al. (2004/0218180)** and **Eriguchi et al. (6,113,733)**.

As for **claims 32-33**, Nikoonahad discloses everything as above (see claim 30). In addition, he discloses that models of properties such as for particular layers like the topmost as function of reflectance are produced (col. 79, lines 25-65; col. 43, lines 45-65). He is silent

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concerning the calibration ellipsometer being a spectroscopic reflectometer nor the second device, the spectroscopic ellipsometer being a laser reflectometer of a predetermined wavelength. However, Rosencwaig in a thin film optical measurement system teaches that ellipsometers are a form of reflectometers for they acquire reflectance data (paragraphs 0036 and 0043). And Eriguchi in an apparatus for optical evaluation teaches that spectroscopic ellipsometers use lasers of a predetermined wavelength, Ar ion lasers (col. 46, lines 55-60). Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made that the calibrating ellipsometer and spectroscopic ellipsometer comprised two spectroscopic reflectometers with a laser, for ellipsometers acquire reflectances and spectroscopic reflectometers use argon ion lasers in order to measure thin film characteristics at a predetermined wavelength.

*Allowable Subject Matter*

8. **Claims 9, 18, 39-43** are allowed.

**Claim 10** would be allowed if written to overcome objection above.

**Claim 21** would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

As to **claim 39**, the prior art of record, taken alone or in combination, fails to disclose or render obvious in a method of determining a property of a wafer measuring reflectance at a plurality of wavelengths with a first spot size and measuring reflectance at a predetermined wavelength with a second spot size, in combination with the rest of the limitations of **claims 39-43, 9, 10, 18, and 21**.

***Response to Arguments***

9. Applicant's arguments, see Remarks filed September 14, 2004, with respect to the rejection of claims 9, 10, 18, 21 under 35 U.S.C. 102(e) and claims 39-43 under 35 U.S.C. 103(a) have been fully considered and are persuasive. In light of the persuasiveness of the arguments and the amendment of the claims, the rejections of claims 9, 10, 18, 21, and 39-43 in the previous action have been withdrawn. However, claim 21 has been rejected under 35 U.S.C. 112 second paragraph. See above.

Applicant's arguments with respect to claims 30-34 have been considered but are moot in view of the new ground(s) of rejection. See above.

***Conclusion***

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: U.S. Patent 6,804,003 to Wang et al. (ellipsometric system that is self-calibrating)

***Fax/Telephone Numbers***

If the applicant wishes to send a fax dealing with either a proposed amendment or a discussion with a phone interview, then the fax should:

- 1) Contain either a statement "DRAFT" or "PROPOSED AMENDMENT" on the fax cover sheet; and
- 2) Should be unsigned by the attorney or agent.

This will ensure that it will not be entered into the case and will be forwarded to the examiner as quickly as possible.

*Papers related to the application may be submitted to Group 2800 by Fax transmission. Papers should be faxed to Group 2800 via the PTO Fax machine located in Crystal Plaza 4. The form of such papers must conform to the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The CP4 Fax Machine number is: (703) 872-9306*

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gordon J. Stock whose telephone number is (571) 272-2431.

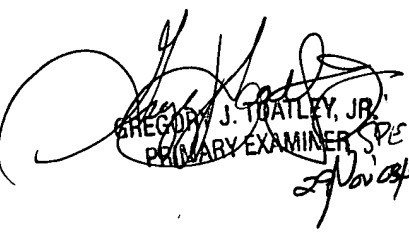
The examiner can normally be reached on Monday-Friday, 10:00 a.m. - 6:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr., can be reached at 571-272-2800 ext 77.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private Pair system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
gs

November 27, 2004

  
GREGORY J. TOATLEY, JR.  
PRIMARY EXAMINER, SPE 2877  
27 Nov 04